

# COMET TRC-20S1



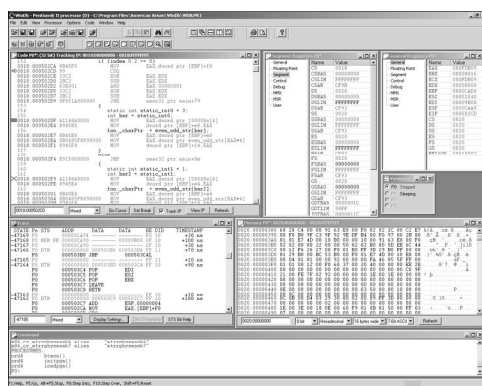
## Full-Featured In-Circuit Emulator (ICE) For Intel® Pentium® III Processors

Welcome to American Arium's state-of-the-art family of COMET in-circuit emulators. COMET products offer exceptional visibility to your target operation. Our TRC-20S1 ICE provides real-time run control and superb event and trigger manipulation, including accurate breakpoint capabilities on both the processor *and* the frontside bus, giving you a robust tool for pinpointing, tracing, and eliminating low-level software hangs. And with a direct link to your network via a TCP/IP connection, data communication moves faster than ever. In addition to including all the features you would expect to find in any professional debugging tool, American Arium's COMET TRC-20S1 incorporates state-of-the-art technology designed to minimize debug time, helping you complete your project on schedule and within budget.

The TRC-20S1 is a full-featured in-circuit emulator designed to debug BIOS, device drivers, OS kernels, and embedded applications with frontside bus cycles between 66 MHz and 133MHz.

Primary among the TRC-20S1's features is trace capability, giving you the ability to review execution history in order to analyze past events. Employing American Arium's state-per-transfer data, the ICE captures technology that aligns processor cycles for reliable bus cycle type, address, *and* data breakpoint functionality. You can even break on deferred cycles. In addition, the emulator offers all the features of our in-target probes, eliminating the need for multiple solutions to your software problems.

The WinDb debugger interface is an American Arium core technology specifically designed for high-end Intel Architecture (IA) design and debug. The 32-bit application runs on Microsoft® Windows® 95/98/NT/2000.



WinDb Interface

WinDb is used with all American Arium probes and emulators. Because the company designed and developed the software specifically for the equipment, the tight integration of the hardware and software gives you the most reliable product on the market today. Easy to install and use, the software has IA-32- and IA-64-specific features that cannot be found in any other debugger. You can step through mode changes, set breakpoints in out-of-context address space, and view fly-over addresses as never before.

American Arium has forged a synergistic relationship with Intel Corporation, creating strong working ties with the chip maker. With privileged access to early silicon, our debugging tools support most Intel processors, including the Pentium III processor. And Intel is not only a supplier but a customer, using our emulators to debug their systems. Such a relationship helps ensure the compatibility and reliability of all of our products.

## TRC-20S1 Features

- Works in real time
  - All processor frequencies
- Breakpoints
  - 4 debug register
  - 64 software
  - 6 hardware events
  - 4 sequence levels
  - 1 counter
  - SMM entry/exit
  - Reset
  - BNC external trigger in/out
  - Bus de-pipeline in hardware
  - Deferred cycles supported
  - 16 external probes (optional)
- Source code/symbolic debug
  - Boot-loadable OMF-386, ELF/DWARF2, Intel Textsym
- Multi-processing (SMP) support
- Real-time trace
  - 66/100/133 MHz bus acquisition
  - 256K x 207 bits
  - 31-bit, 10 ns timestamp
  - 16 external probes (optional)
  - Disassembly with cache enabled
  - SMP threads recorded (color coded)
  - Integrated symbols
  - Linked C source code
  - Bus event filtering
  - Save to disk
- Registers
  - 386
  - System Control
  - Debug
  - MSRs
  - Floating point
  - MMX™ technology
  - XMM (SSE)
- Address translation
  - Real
  - Virtual-86
  - BigReal
  - Protected
  - System Management Mode
- Robust command language
- Download formats
  - BIN, OMF-386, ELF, DOS EXE, Intel Hex
- Dynamic page translation
- Self-diagnostic test suite
- TCP/IP interface
- 1 year free comprehensive warranty

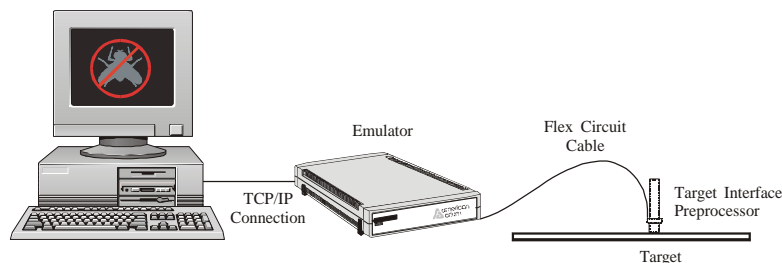
# COMET TRC-20S1

Intel Pentium III processors can be emulated via a JTAG In-Target Probe (ITP) tool (ECM-20PE) as well as a TRC-20S1.

The primary differences between the ECM-20PE and the TRC-20S1 are:

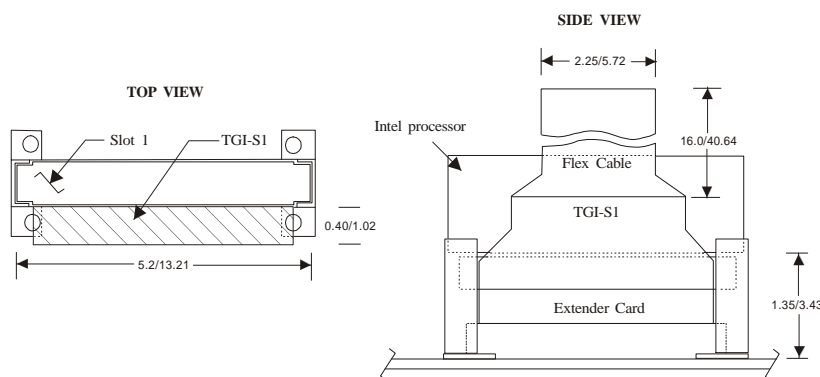
1. **Processor bus trace** - The ECM-20PE is a run control tool only. With the TRC-20S1, the processor trace is used to view a history of executed code. Filters can be used to view specific events that are important while debugging.
2. **Bus breakpoints** - Since the TRC-20S1 monitors the frontside bus, you can set breakpoints on hardware bus events. Complex sequences can be used to stop the processor. I/O and memory read and write triggers can even be specified with data values.
3. **Interconnect** - The ECM-20PE connects via a Test Access Port (TAP). The TRC-20S1 plugs directly into the processor slot.

TRC-20S1 BLOCK DIAGRAM



PREPROCESSOR MECHANICAL SPECIFICATION

Scale: in/cm



## PC Host Requirements

- PC host (Pentium processor or higher)
- Windows 95/98/NT/2000
- SVGA monitor (800x600 or higher)
- 20 Mbytes hard disk space
- 16 Mbytes RAM

## Specifications

<b>Environmental:</b>	32-90°F (0-31°C), max 85% humidity
<b>Communications:</b>	10Base-T, TCP/IP
<b>Dimensions (in/cm):</b>	(H)2.25/5.7 (W)11/27.9 (L)9.6/24.4
<b>BNC trig in:</b>	50 Ohm, 155 ns max. delay
<b>BNC trig out:</b>	50 Ohm, 125 ns max. delay

## Ordering Information

TRC-20S1	Intel Pentium III processor full-featured in-circuit emulator. Includes COMET frontside bus trace emulator, interface hardware, power supply, cables, WinDb software, manual, and one year STAR-1 service agreement.
PRB-16	16-channel external probe
STAR-1	Annual five point service agreement

## The Company

American Arium has been the primary market supplier of Pentium processor ITPs and ICEs since 1992. The company introduced Intel Pentium Pro and Pentium II processor development tools in 1995 and 1996, respectively. In 1998, American Arium introduced tool support for the Pentium II Xeon™ processor. The company currently supports Intel Celeron™, Pentium, Pentium II/III, Pentium II/III Xeon™, Pentium 4, Mobile Pentium, Mobile Pentium II/III, and Itanium™ processors. The company's mission is to provide timely, superior technical products with an unmatched commitment to service.

*Note: Equipment specifications and performance characteristics may change without notice.*



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